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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,947	04/10/2001	Junji Yamada	205650US3	6993

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EXAMINER

MITCHELL, JAMES M

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 02/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/828,947

Applicant(s)

YAMADA, JUNJI

Examiner

James Mitchell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. This office action is in response to the application filed April 10, 2001.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 1 recites the limitation "the case" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 2, 4, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masumoto et al. (U.S 5,646,445) in view of applicant's admitted prior art (APA).

8. Masumoto (Fig. 29) discloses a power semiconductor module with a connection structure that has an electrode terminal (1,2) connected with a power semiconductor device (E2), which is resin sealed (41) inside a case (11), the terminal exposed along the outer surface of the case with an embedded nut (31) with a female screw hole (Line 18, Column 2) and a male screw member ("bolt", Lines 19-20, Column 2), wherein the nut is fixed to the lower surface of the terminal.

9. Masumoto does not disclose the terminal as being electrically connected to an electrode for external connection.

10. However, applicant's admitted prior art (Fig. 9) utilizes an electrode terminal being connected to an electrode for external connection ("electrode plate", 97) that is secured by a nut (85) fixed to a middle portion of the screw member.

11. It would have been obvious to one of ordinary skill in the art to incorporate with the terminal of Matsumoto an additional electrode wherein the screw member is engaged with the female screw hole through a plurality of electrode terminals, in order to form an external connection as admitted by applicant (Lines 18-19, Page 2).

12. In regards to claim 4, it would have been an obvious matter of design choice to change the size of the screw member such that it opposite ends have different

diameters, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955), *Gardner v. Tec*, 220 USPQ 777 (Fed Cir. 1984).

13. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto and APA as applied to claim 1 and further in view of Takegawa (JP 09-55462).

14. Neither Matsumoto nor the admitted prior art show the terminal with a female screw hole formed therein, however Takegawa utilizes a female screw hole within a terminal.

15. It would have been obvious to one of ordinary skill in the art to modify the combined terminal structure of Matsumoto and APA by incorporating a female screw hole within the terminal in order to lessen the manufacturing cost of the semiconductor by dispensing with the fixing nut as taught by Takegawa (Abstract Solved, Lines 1-3).

16. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto and APA as applied to claim 1 and further in view of Abe (U.S 4,018,132).

17. The prior art does not show the threads of a screw or bolt at opposite ends having threads of opposite direction or with a middle portion having no screw thread.

18. However, Abe (Fig. 3) utilizes a screw or bolt at opposite ends having threads of opposite direction and a middle portion having no screw thread.

19. It would have been obvious to one of ordinary skill in the art to form the bolt of Masumoto with of a screw or bolt having threads of opposite direction at opposite ends

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and with a middle portion having no screw thread, in order to increase the mechanical strength of the bolt as taught by Abe (Lines 30-31, Column 1).

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Matsushita (EP 0591,900 A2) and Payne (GB 2,221,793A).

The prior art discloses in Matsushita the use of an external terminal electrically connected to a power device and secured by a terminal nut that is fixed to a middle portion of the screw member, and in Payne the use of nut fixed to the screw member for securing plate beneath the nut.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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jmm

February 13, 2002



DAVID E. GRAYBILL
PRIMARY EXAMINER